

AK

Notice of Allowability	Application No.	Applicant(s)	
	10/627,895	PARK, JE-MIN	
	Examiner	Art Unit	
	David L. Hogans	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Election filed on December 28, 2004.
2. ☒ The allowed claim(s) is/are 9-17.
3. ☒ The drawings filed on July 24, 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

This Office Action is in response to the Election filed December 28, 2004.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Hosoon Lee on January 14, 2005.

The application has been amended as follows: Please cancel claims 1-8

Election/Restrictions

The Examiner agrees with Applicant's representative that Claim 1 is generic.

Status of Claims

Claims 9-17 are pending. Claims 1-8 are cancelled.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Allowable Subject Matter

3. Claims 9-17 are allowed.

4. The following is an examiner's statement of reasons for allowance.

6,168,992 to Lee teaches forming interconnects to bit line contact pads but fails to teach forming bit line contact plugs by filling the bit line contact holes with a first

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conductive material, forming damascene bit lines on the bit line contact plugs by filling lower parts of spaces between the oxide layer patterns with the first conductive material, and etching the oxide layer patterns over the bit lines so that only the portions of the oxide layer patterns having the first width protrude above the bit lines; covering the bit lines with a mask layer and planarizing the mask layer until the top surfaces of the oxide layer patterns remaining after step (h) are exposed; selectively removing the remaining oxide layer patterns, the etch stopper under the remaining oxide layer patterns, and the second oxide layer with respect to the mask layer, thereby forming storage node contact holes; and forming storage node contact plugs by filling the storage node contact holes with a second conductive material.

6,337,267 to Yang teaches forming damascene interconnects to a contact pad area but fails to teach forming bit line contact plugs by filling the bit line contact holes with a first conductive material, forming damascene bit lines on the bit line contact plugs by filling lower parts of spaces between the oxide layer patterns with the first conductive material, and etching the oxide layer patterns over the bit lines so that only the portions of the oxide layer patterns having the first width protrude above the bit lines; covering the bit lines with a mask layer and planarizing the mask layer until the top surfaces of the oxide layer patterns remaining after step (h) are exposed; selectively removing the remaining oxide layer patterns, the etch stopper under the remaining oxide layer patterns, and the second oxide layer with respect to the mask layer, thereby forming storage node contact holes; and forming storage node contact plugs by filling the storage node contact holes with a second conductive material.

6,528,368 to Park teaches forming various width interconnects to cell pads but fails to teach forming bit line contact plugs by filling the bit line contact holes with a first conductive material, forming damascene bit lines on the bit line contact plugs by filling lower parts of spaces between the oxide layer patterns with the first conductive material, and etching the oxide layer patterns over the bit lines so that only the portions of the oxide layer patterns having the first width protrude above the bit lines; covering the bit lines with a mask layer and planarizing the mask layer until the top surfaces of the oxide layer patterns remaining after step (h) are exposed; selectively removing the remaining oxide layer patterns, the etch stopper under the remaining oxide layer patterns, and the second oxide layer with respect to the mask layer, thereby forming storage node contact holes; and forming storage node contact plugs by filling the storage node contact holes with a second conductive material.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Hogans whose telephone number is (571) 272-1691. The examiner can normally be reached on M-F (7:30-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

OK
DH

Craig A. Thompson
CRAIG A. THOMPSON
PRIMARY EXAMINER